

Date: Sat, 23 Apr 94 04:30:35 PDT  
From: Ham-Space Mailing List and Newsgroup <ham-space@ucsd.edu>  
Errors-To: Ham-Space-Errors@UCSD.Edu  
Reply-To: Ham-Space@UCSD.Edu  
Precedence: Bulk  
Subject: Ham-Space Digest V94 #103  
To: Ham-Space

Ham-Space Digest                      Sat, 23 Apr 94                      Volume 94 : Issue 103

Today's Topics:

                    Keplerian Bulletin 15    ARLK015  
                    Looking for the Satellite FAQ  
                            Mir QSL?  
                    OH5IY's meteor scatter S/W V4.2 released  
                            QRP satellite work  
                            Question...  
                    STS-59 Orbital State Vector Rev #171  
                    Two-Line Orbital Element Set: Space Shuttle

Send Replies or notes for publication to: <Ham-Space@UCSD.Edu>  
Send subscription requests to: <Ham-Space-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Space Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-space".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

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Date: Thu, 21 Apr 1994 12:40:35 GMT  
From: ihnp4.ucsd.edu!library.ucla.edu!csulb.edu!csus.edu!netcom.com!  
marcbg@network.ucsd.edu  
Subject: Keplerian Bulletin 15    ARLK015  
To: ham-space@ucsd.edu

ZCZC SK82  
QST de W1AW  
Keplerian Bulletin 15    ARLK015  
>From ARRL Headquarters  
Newington, CT April 16, 1994  
To all radio amateurs

Thanks to NASA, AMSAT and N3FKV for the following Keplerian data.

Decode 2-line elsets with the following key:

1 AAAAAU 00 0 0 BBBB.BBBBBBBB .CCCCCCCC 00000-0 00000-0 0 DDDZ  
2 AAAAA EEE.EEEE FFF.FFFF GGGGGGG HHH.HHHH III.IIII JJ.JJJJJJJKKKKKZ  
KEY: A-CATALOGNUM B-EPOCHTIME C-DECAY D-ELSETNUM E-INCLINATION F-RAAN  
G-ECCENTRICITY H-ARGPERIGEE I-MNANOM J-MNMOTION K-ORBITNUM Z-CHECKSUM

AO-10

1 14129U 83058B 94093.93015575 -.000000105 10000-3 0 2736  
2 14129 27.1781 334.0078 6020533 167.5108 219.1680 2.05877978 53285

RS-10/11

1 18129U 87054A 94104.20127577 0.000000016 14274-5 0 8891  
2 18129 82.9269 16.1383 0010438 196.2914 163.7905 13.72334612341134

UO-11

1 14781U 84021B 94101.00958292 0.000000306 59703-4 0 6809  
2 14781 97.7900 118.8735 0012594 120.8281 239.4170 14.69188820540441

RS-12/13

1 21089U 91007A 94104.30260014 0.000000030 15640-4 0 6798  
2 21089 82.9197 58.8219 0028099 289.1188 70.6929 13.74038581159879

AO-13

1 19216U 88051B 94102.44882608 -.000000591 10000-4 0 9010  
2 19216 57.8540 258.2544 7212470 338.9704 2.1469 2.09726746 13130

UO-14

1 20437U 90005B 94102.72595379 0.000000044 34216-4 0 9800  
2 20437 98.5909 188.3875 0011861 27.2725 332.9072 14.29836251220236

AO-16

1 20439U 90005D 94102.22422065 0.000000035 30574-4 0 7809  
2 20439 98.5999 189.0565 0012191 28.4313 331.7529 14.29890613220173

DO-17

1 20440U 90005E 94102.18498366 0.000000054 37689-4 0 7796  
2 20440 98.5997 189.3180 0012323 28.1110 332.0736 14.30029880220185

WO-18

1 20441U 90005F 94103.20868419 0.000000027 27434-4 0 7811  
2 20441 98.6004 190.3356 0012767 26.3552 333.8277 14.30004741220330

LO-19

1 20442U 90005G 94102.77141414 0.000000065 42093-4 0 7799  
2 20442 98.6011 190.1446 0013248 26.1774 334.0074 14.30100099220281

FO-20

1 20480U 90013C 94097.96669648 -.000000006 52518-4 0 6741  
2 20480 99.0290 263.0912 0541461 138.5003 225.8553 12.83224980195126

AO-21

1 21087U 91006A 94103.24778531 0.000000093 82657-4 0 4536  
2 21087 82.9451 190.7595 0033903 265.5771 94.1509 13.74537687160664

UO-22

1 21575U 91050B 94105.18696717 0.000000099 47940-4 0 4821  
2 21575 98.4391 180.9472 0008536 113.8412 246.3672 14.36907331144038

KO-23

1 22077U 92052B 94101.99590421 -.000000037 10000-3 0 3763  
2 22077 66.0840 58.5659 0012448 304.1572 55.8265 12.86285353 78271

KO-25

1 22830U 93061H 94098.16232175 0.000000083 50860-4 0 2795  
2 22830 98.5601 172.6843 0012451 25.4816 334.6987 14.28045473 27700

IO-26

1 22826U 93061D 94103.67236218 0.000000059 41781-4 0 2778  
2 22826 98.6582 180.1464 0010144 41.2739 318.9209 14.27721247 28481

AO-27

1 22825U 93061C 94103.75676341 0.000000039 33835-4 0 2770  
2 22825 98.6585 180.2028 0009625 39.3913 320.7961 14.27617999 28499

PO-28

1 22829U 93061G 94102.72059002 0.000000040 33685-4 0 2707  
2 22829 98.6544 179.2203 0010938 32.2906 327.8933 14.28017457 28350

STS-59

1 23042U 94020A 94105.25000000 0.00021265 11104-4 10206-4 0 229  
2 23042 56.9919 235.9631 0007572 284.1210 37.4442 16.22555238 935

Mir

1 16609U 86017A 94104.80609580 0.000006708 91817-4 0 5668  
2 16609 51.6466 143.8890 0015448 142.9508 217.2549 15.58638827466139

Keplerian bulletins are transmitted twice weekly from W1AW.

The next scheduled transmission of these data will be Tuesday,  
April 19, 1994, at 2230z on Baudot and AMTOR.

NNNN

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Marc Grant

home: marchbg@netcom.com

work: marchbg@esy.com

Pager : 214-246-1150

Amateur Radio N5MEI

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Date: 22 Apr 94 15:09:15 GMT

From: agate!library.ucla.edu!csulb.edu!csus.edu!netcom.com!

dparker@ucbvax.berkeley.edu

Subject: Looking for the Satellite FAQ

To: ham-space@ucsd.edu

Well I read it, loved it, then did not save it. Now I cannot find it.

Would some kind person e-mail it to me?

Great information!

Many thanks in advance,

Dave

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\* Dave Parker: e-mail: dparker@netcom.com \*

\* Tracy, California USA \*

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Date: 21 Apr 1994 00:04:03 GMT  
From: ihnp4.ucsd.edu!swrinde!elroy.jpl.nasa.gov!hyperion.jpl.nasa.gov!  
laborde@network.ucsd.edu  
Subject: Mir QSL?  
To: ham-space@ucsd.edu

OK, I finally got through to Mir. A beautiful connect too. I uploaded a message, listed the messages, uploaded another, all in 2 minutes. This was over LA. One has to wonder what was wrong...

So how does one QSL Mir?

-Greg

-----  
Date: Tue, 19 Apr 1994 10:56:58 -0600  
From: ihnp4.ucsd.edu!swrinde!gatech!newsxfer.itd.umich.edu!nntp.cs.ubc.ca!alberta!ve6mgs!usenet@network.ucsd.edu  
Subject: OH5IY's meteor scatter S/W V4.2 released  
To: ham-space@ucsd.edu

Good news for meteor scatter freaks !

Version 4.2 of OH5IY's meteor scatter software has been released today. I have uploaded it into ftp.funet.fi: pub/ham/vhf-work/mssoft42.zip.

V4.2 has lots of improvements and changes compared to V4.1. The most exciting new feature is true, measured activity of major showers. The graphs show the profile of each shower 96 hrs around the peak. This is something you really want to lay your hands on !!

Other new features or changes include:

- bar graphics ZHR history for major showers since 1980.
- updated shower data and improved peak calculation algorithms.
- meteor speed correction factor used in computing ant. elevation.
- sidescatter optimum elevations computed.
- day scanning on gradient curves with EGA&VGA.
- single screen shows all numeric gradient data.
- improved text editor and find function in sked-editor.
- improved install and default parameter setting program.
- better error handling.
- mouse control.
- creates \ms and \msdata subdirectories
- installs on any existing subdirectory.

- report can be sent 2 or 3 times on CW.

There are many new features not listed above. See [readme42.com](http://readme42.com) to find them all.

If you are using this software, send a message to OH5IY for his records. If you send your packet or e-mail address, you will get the new data files automatically after each shower. OH5IY's e-mail and packet addresses are mentioned in the end of [readme42.com](http://readme42.com).

If you can't ftp but want a copy of the new version, send a formatted 3.5" HD disk with 4 IRCs (or equal amount of USD) inside Europe, 6 IRCs outside Europe, + Self Addressed Envelope (SAE) to Ilkka Yrjola OH5IY, Jukolan tie 16, FIN-45740 Kuusankoski, Finland.

The first copies of the new version will be mailed out this week.

The latest version is always available by anonymous ftp at [ftp.funet.fi](ftp://ftp.funet.fi) (128.214.6.100): `pub/ham/vhf-work/mssof*.zip`. The new versions will be named as `mssof421.zip`, `mssof422.zip`, `mssof43.zip` etc. (Hint: use `pkunzip -d` to open the .zip file). In future look also for `msdata94.zip`, which will contain all new data files. It will be updated after each shower.

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Jukka OH6DD      [jsi@hut.fi](mailto:jsi@hut.fi)

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Date: 20 Apr 1994 21:41:09 GMT  
From: [ihnp4.ucsd.edu!usc!nic-nac.CSU.net!charnel.net.csuchico.edu!charnel!olivea!news.bu.edu!dartvax.dartmouth.edu!usenet@network.ucsd.edu](mailto:ihnp4.ucsd.edu!usc!nic-nac.CSU.net!charnel.net.csuchico.edu!charnel!olivea!news.bu.edu!dartvax.dartmouth.edu!usenet@network.ucsd.edu)  
Subject: QRP satellite work  
To: [ham-space@ucsd.edu](mailto:ham-space@ucsd.edu)

I've been thinking of getting into amateur satellite work lately. Just sort of rummaging through my AES catalog as a general benchmark for prices, I've decided that the "top-end" satellite station, from what I've read would be something like a Yaesu FT-736R transceiver, a Yaesu G-5400B alt/az rotor w/ computer interface, a pair of KLM circularly polarized yagis, a fiberglass boom, some sort of mount, an amp/preamp, 15 to 30m of Belden 9913 and 8448 cable, a PC to run the rotor controller software and tracking software, etc... around \$5000US or thereabouts.

Which is about \$5000 more than what I have to spend right now :-)  
My current setup is used mostly for packet and consists of a macintosh computer, an unmodified Alinco DJ-580T, a KPC-3 TNC, an Astron RS-20A, and a Hustler dualband base station vertical at about 15m above ground. My question is what sort of satellite work can I do with this setup?

Anything? What sort of supplements could I add to it to work sats?

From what I have read so far, almost all of the satellites seem to use SSB/CW. Can anything be done with FM? How does packet work? In general, can anything be worked with a vertical ground plane antenna, or do you have to use yagis with alt/az rotation? Is anything workable on 5W, or would I really need an amp/preamp?

In short, is there anything I can do with my current setup, or should I wait for five or six years until I'm out of school and can afford to invest in this sort of equipment?

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```
=====
Kenneth E. Harker  N1PVB          Dartmouth College  Amateur Packet Radio
kenneth.e.harker@dartmouth.edu  Hinman Box 1262    n1pvb@w1et.nh.usa.na
(603) 643-5716      Hanover, NH 03755  or n1pvb-5 on 144.99
=====
```

(PGP Public Key now available on request)

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Date: Tue, 19 Apr 94 23:40:10 -0600  
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!math.ohio-state.edu!  
news.acns.nwu.edu!news.eecs.nwu.edu!fidogate.nuars.nwu.edu!nwugate.fidonet.org!  
f747.n115.z1.fidonet.org!Patrick.Signs@network  
Subject: Question...  
To: ham-space@ucsd.edu

I am interested into working the PacSats. Will it require me to have to buy two data radios or would one radio with 440receive and full duplex operation work? Particularly looking at the new IC-281H(I believe still pending FCC approval). Any help would be appreciated.

N6K0I - Pat

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Date: 20 Apr 1994 14:43:23 -0500  
From: ihnp4.ucsd.edu!usc!cs.utexas.edu!gerald@cc.utexas.edu!  
sylveste@cc.utexas.edu!not-for-mail@network.ucsd.edu  
Subject: STS-59 Orbital State Vector Rev #171  
To: ham-space@ucsd.edu

Are there any programs that use the OSVs for the mac to trak the shuttle? Will these work with Orbitrack?  
Also, where can a mac program be found to plot the track against the star background?

Any info appreciated

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The most current orbital elements from the NORAD two-line element sets are carried on the Celestial BBS, (513) \*253-9767\*, and are updated daily (when possible). Documentation and tracking software are also available on this system. As a service to the satellite user community, the most current elements for the current shuttle mission are provided below. The Celestial BBS may be accessed 24 hours/day at 300, 1200, 2400, 4800, or 9600 bps using 8 data bits, 1 stop bit, no parity.

```

STS 59
1 23042U 94020A    94108.91666667 .00027498 11147-4 11102-4 0    342
2 23042  56.9904 218.1997 0007553 293.0523 224.3536 16.24255567 1534
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```

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References <2mv5h4\$t13@nic.umass.edu>, <CnEEwy.Kpy@freenet.carleton.ca>,  
<CSLE87-180494133450@145.39.1.10>.  
Subject : Re: On-line satellite schedules?

>In article <CnEEwy.Kpy@freenet.carleton.ca>, ag381@FreeNet.Carleton.CA  
>(Herb Dieben) wrote:

&gt;&gt;

>>  
>> In a previous article, awoodhull@hamp.hampshire.edu () says:  
>>  
>> >Is there an on-line source of data about Oscar and RS satellite schedules  
>> >of operation?  
>> >  
>> > Albert S. Woodhull  
>> > Hampshire College, Amherst, MA, USA  
>> > awoodhull@hamp.hampshire.edu  
>> >  
>> Let me know if you find one.  
>> Thanks,Herb  
>> >

>You are both in the right place. The orbital data appears here regularly,  
>and  
>is usually titled \$ORBnnn.type, where the "nnn" is a sequentially assigned  
>number and the "type" may be weather (WX), amateur (OSCAR) or other fairly  
>easily decoded suffix. You may also see the title containing the word  
>"KEPS,"  
>short for Keplerian orbital data.

>Recently several folks have been posting their own original works or  
>duplicates of the ARRL and AMSAT listings into the rec.radio.amateur.misc  
>newsgroup, which is strongly discouraged. Keep looking here, you'll find  
>much valuable news here, including SpaceNews, the AMSAT bulletins, and  
>other  
>helpful info.

I agree that single-maintainer distribution for FAQ's and bulletins is desirable under most circumstances. The down side is that a single maintainer is also a single point-of-failure. A very powerful technique for allowing multiple posters without duplication at any site is available within Usenet news (essentially a hack of the Message-ID, similar to the BID system on amateur packet radio). Currently the rec.radio.info moderator coordinates several posters of ARRL bulletins, mapping the packet bids to Usenet Message ID's. For example, ARRL Space Bulletin 20 with a packet BID of \$ARLS020 would map to:

Message-ID: <\$arls020.1994@ampr.org>

Technically, Message ID's should contain the domain of the originating station, but since users from several domains may post the bulletins, and ultimately the bulletins may be considered to originate from amateur packet radio, making ampr.org the domain resolves the issue without subverting the intent of RFC 1036 too much (the addition of the year to the BID makes it unique indefinitely, which RFC 1036 strongly recommends).

Since the orbital elements have their own BID convention (starting with \$ORB), such a multiple-poster arrangement can be used for them as well. If anyone is interested in becoming a volunteer "bulletin station" for Usenet for any bulletins with BIDS, contact the rec.radio.info moderator at rec-radio-request@ve6mgs.ampr.ab.ca. In this way, we can keep the information flowing fast and regularly without burdening any one person or small group of people too much while avoiding unnecessary duplication.

73, Paul W. Schleck, KD3FU

pschleck@unomaha.edu

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End of Ham-Space Digest V94 #103

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